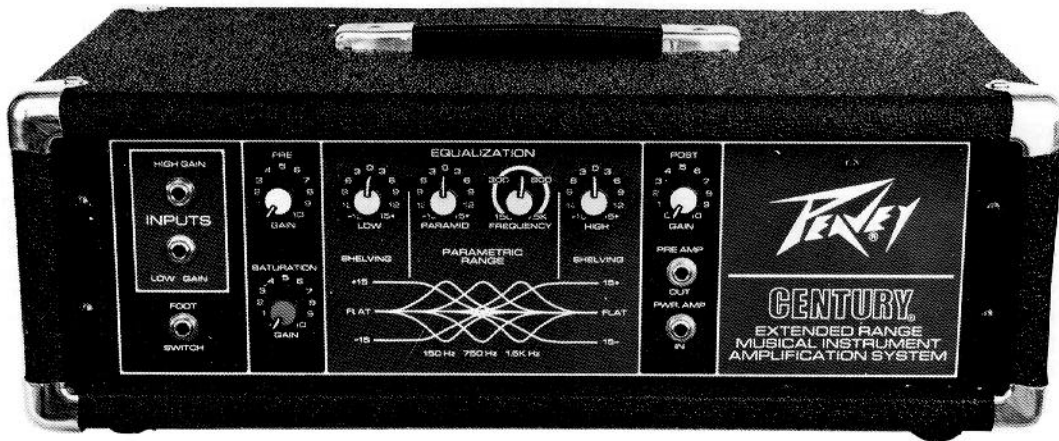


# Operating Guide For



## THE CENTURY™

### GENERAL DESCRIPTION

For many years, working musicians have consistently expressed the need for a simple, economical but effective "utility" amplifier. Our new Century™ is such a utility amplifier featuring 100 watts RMS (@ 4 ohms), the latest active equalization circuitry, and tremendous input dynamic range to enable its use with almost any instrument. This unit is an ideal bass or keyboard amplifier and, with the inclusion of our unique "SATURATION™" effect, is also a truly exceptional 100 watt guitar amplifier. This Saturation effect produces the warm overload and sustain characteristics of vacuum tube amplifiers and is intended primarily for guitar; however, many interesting and novel effects can be accomplished with bass and keyboard instruments. The Saturation effect is further enhanced by the ability of the Century to control this effect with an optional remote footswitch.

Our equalization circuit features active "shelving" type high and low equalizers and our unique "PARAMID™" equalizer for the vital midrange frequencies. Our Paramid circuit enables true boost or cut capability in the vital midrange as well as enabling shifting the center frequency over an extremely wide range. This unique active/parametric equalization circuit enables the Century to duplicate almost any tonality and, when combined with the tremendous dynamic capabilities and Saturation features of the preamp, the results are truly exceptional.

We have included an "effects loop" consisting of a transient protected preamp out/power amp in system of jacks to enable utilization of the Century with external devices such as power amps, effects devices, etc. A post gain (master volume) has also been included to further enhance this unique amplifier's capabilities.

The 100 watt power amp of the Century utilizes four rugged T0-3 power devices bolted to a massive aluminum heatsink. Power is supplied from a large transformer utilizing a grain-oriented silicon steel core feeding large silicon rectifiers in a full bridge configuration. The dual 5,500 microfarad filter capacitors supply well-regulated d.c. and provide tremendous instantaneous dynamic power capability.

Overall, the new Century is the utility amplifier. It has the unique features, gain, overload dynamics, equalization and "ruggedized" output to handle almost any musical instrument. Its conservative 100 watt rating does not actually convey its true dynamic music power capabilities. If your requirements are for a simple "no frills" professional amplifier in the 100 watt range, we are confident that the Century will fill your needs.

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**WARNING: TO PREVENT ELECTRICAL SHOCK OR FIRE HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.  
READ ALL INSTRUCTIONS CAREFULLY AND RETAIN THIS GUIDE FOR FUTURE REFERENCE.**

## FRONT PANEL

### INPUTS

The new Century has been provided with two input jacks, each having different sensitivities and a unique arrangement allowing the gain of **both** jacks to be **equalized** when instruments are plugged into **both** jacks. The high gain jack (A) is the input normally used and has considerably more sensitivity and input impedance than the low gain jack (B). This low gain jack has been included to allow extension of the input dynamic range. If the output signal from your instrument is overloading (distorting) the high gain input, then the low gain input (-6 dB) should be used.

### GAIN BLOCK™

The Century has been designed utilizing our new "GAIN BLOCK™" signal processing front end. The provision of three interacting controls allows complete and total control of the amp's gain structure (dynamics), harmonic content, overload texture, and output level. Each of the three control functions must be understood and adequate experimentation time spent in order to fully utilize the potential of this unique and innovative new amp.

#### PRE GAIN

Our pre gain control (C) is similar to conventional volume controls in that it is the first level setting device in the system. Our input preamp circuitry utilizes variable negative feedback with the pre gain control as part of the active circuit. Utilization of this type circuitry enables an optimum combination of input dynamic range, input impedance, and low noise operation for any particular gain setting. Operation should present no problem since its action is conventional even though the associated circuitry is quite different from older, totally passive circuits. Please be aware that this control exhibits the professionally accepted logarithmic (audio) taper having approximately one-tenth of the gain achieved at the 12:00 o'clock position with the balance being obtained as the control is rotated clockwise. Many manufacturers utilize "linear" action controls that concentrate almost all of the gain in the first one-third of the control rotation. While this "linear operation" is "initially impressive," it should be noted that having **all** the gain "up front" in the first one-third turn is **misleading** and significantly reduces the amount of control latitude available.

#### "SATURATION™"

The "SATURATION™" control (D) is the control element for setting the operating point for our new and unique "SATURATION™" circuitry. Because the guitar amp is a very vital part of the sound of the electric guitar, we have devoted many years toward achieving the proper "sound" and gain/overload dynamics sought by guitarists. Until now, amps utilizing vacuum tubes/valves have been considered by many players to be superior to most solid-state units. Today Peavey is the only major manufacturer of **both** tube type **and** solid-state amps, giving us a unique opportunity to study and analyze the various characteristics of each type.

Our extensive research revealed that tubes have the unique ability to "gain compress" at high levels and this effect produces a pleasing and "harmonically rich" smooth overload capability. Once having identified the various characteristics of tube amps, we set out to develop solid-state circuitry that would match the performance of tube type equipment.

Our "SATURATION™" effect closely duplicates the gain/compression effect of vacuum tubes. The total tube sound is a result of the "interplay" between the voltage application (preamp) and the power amp/speaker interface. The "SATURATION™" circuit operates in the preamp circuitry and exhibits successively more gain/compression effect as the control is rotated clockwise. It should be noted that the SATURATION™ effect must be balanced with proper settings of all three controls in the GAIN BLOCK™ for maximum effects. The pre gain must be set high enough for adequate drive voltage to the SATURATION™ circuit while the SATURATION™ control should be varied to achieve the desired sustain/overload characteristic. The post gain sets the sensitivity of the power amp (master volume) and must be used in conjunction with the above controls for proper results.

It should be remembered that the SATURATION™ effect takes place in the **preamp** and that when the pre and post gain controls are set to drive the power amp to maximum output, the SATURATION™ circuit will have correspondingly little effect on the total sound of the unit as the natural overload characteristics of the power amp come into play.

Experimentation and operating experience will be necessary to fully realize the unique benefits of this SATURATION™ effect. The SATURATION™ effect may be remotely switched out of the circuit through use of the optional remote switch plugged into the footswitch jack (E) on the front panel.

#### POST GAIN

The post gain control (F) determines the input sensitivity of the power amp. The action of this control is similar to that of a "master volume" control and can be used to control the overload dynamics of the preamp by **decreasing** the sensitivity of the power amp. The post gain control allows maximum gain and SATURATION™ effects to be achieved in the preamp circuitry while maintaining relatively low power output levels necessary in studio or practice applications. The operation of this control is conventional and no operational difficulty should be encountered.

### EQUALIZATION

The new Century amp features the latest "active type" equalization for unmatched tonal versatility and function. This active type EQ actually yields a true boost and cut capability as well as enabling the vital midrange EQ point to be shifted over a wide range.

The high and low EQ circuits exhibit a shelving characteristic per professional practice, while the semi-parametric midrange circuitry has a peak/notch response characteristic.

Because these are "active" controls instead of the conventional "passive" or "losser" types, the overall control action is considerably more profound. Since so much range is available, care must be taken not to overboost, which may cause you to run out of power (headroom), or to overcut, which may limit dynamic range. As with most reasonably complex systems, some degree of understanding combined with operating experience must be gained in order to achieve the total potential designed into the system.

#### LOW EQ CONTROL

The low EQ control (G) determines the low frequency content of the signal and is capable of a 30 dB range yielding 15 dB of boost or 15 dB of cut. Because of the boost/cut action of this control, the vertical (12:00 o'clock) setting produces essentially a "flat" response. Rotation clockwise produces increasing amounts of **boost**, while counterclockwise rotation results in cut. Because excessive low end boost can quickly cause headroom problems in the power amp, care is advised when boosting lows. Every **3 dB** increase in boost requires **double** the power capacity. With 15 dB of boost available, it is apparent that headroom problems could easily occur at high boost settings and when playing at high levels. This is especially important when playing bass through the Century.

## PARAMID™ CONTROL

The PARAMID™ control (H) is the element that determines whether the vital midrange of frequencies will be boosted or cut. Its operation is similar to that of the low and high EQ controls in that it provides a "flat" response in the vertical (12:00 o'clock) position with increasing boost in the clockwise and cut in the counterclockwise positions.

The vital midrange frequencies often determine much of the tonal color of any instrument. This new PARAMID™ control enables total control of these frequencies and enables almost any tonality to be achieved with proper adjustment. The PARAMID™ control determines whether the mids will be boosted or cut while working in conjunction with the frequency shift control which varies the frequency of the mid EQ circuitry. Please keep in mind that the PARAMID™ and frequency shift controls work together and must be adjusted relative to each other as well as the low and high EQ controls to obtain maximum effect.

## FREQUENCY SHIFT CONTROL

The center frequency of the PARAMID™ (midrange) EQ circuit may be shifted through a considerable range by use of a "state variable" filter. This unique circuit enables the operating point of the PARAMID™ control to be placed precisely to allow duplication or creation of almost any midrange tonality. Operation of the frequency shift control (I) causes the state variable EQ filter circuitry to sweep across the midfrequency band, enabling boost or cut at any point in the midrange. Very few instrument amplifiers have incorporated this advanced type EQ circuitry because of its more complex design and higher construction costs. We felt that the new Century should embody the latest advances in audio equalization as exemplified by this parametric middle circuitry and have included it for your satisfaction.

## HIGH EQ CONTROL

The high EQ control (J) determines the overall balance of high frequencies in the Century's response. Its action is similar to that of the low frequency control except for its high frequency effect. High end boost is obtained in clockwise positions while cut is obtained in counterclockwise positions. Flat settings result from vertical (12:00 o'clock) settings.

## NOTES ON EQUALIZATION

There is no "perfect" EQ setting that will satisfy everyone. Each instrument, speaker system, etc., has its own response characteristics which must be considered in the final EQ settings. The type of music being played, and the levels being required are also quite important.

For example:

For playing hard rock guitar, it has been found that moderate low boost or sometimes cut combined with middle boost and moderate high boost produce the best results. Most amps which have earned respect for rock guitar exhibit limited low end response, a nice fat (boosted) midrange, and a slightly boosted high end response.

Totally different settings are recommended for **clean** playing such as jazz, country, or gospel music. In those instances, moderate high and low boost are generally combined with varying degrees of midrange **cut**.

Bass applications often show that moderate **bass boost** combined with midrange **cut** and high boost produce the best results. Keyboard applications can vary significantly, but generally will be somewhat similar to the bass application.

Again, there are no "perfect" settings, and there is certainly no magic in flat EQ settings. We have provided one of the most versatile and effective EQ circuits available with which you can experiment in order to find **your** sound.

## PREAMP OUT JACK

The preamp out jack (K) is the output of the preamp and is provided for patching **out** the preamp signal to external devices and/or effects units.

## POWER AMP IN JACK

The power amp in jack (L) is of the switching type and, in the normal (nothing plugged in) configuration, the preamp output is internally connected to the power amp. When a plug is inserted into this power amp in jack, the internal patching connection is broken and the power amp's input is now the plug/patch into the power amp input jack. The purpose of the preamp out/power amp in jacks is to allow auxiliary effects units to be patched "in line" between the preamp and the power amp.

## FOOTSWITCH JACK

The footswitch jack (M) allows remote control of the SATURATION™ function. A standard (tip-sleeve) phone jack equipped footswitch may be used to activate or cut off the SATURATION™ function.

## REAR PANEL

### FUSE

The fuse is located within the cap of the fuseholder (1). It is necessary that the fuse be replaced with the proper type and value if it should fail in order to avoid damage to the equipment and to prevent voiding the warranty. If your unit repeatedly blows fuses, it should be taken to a qualified service center for repair.

### POWER SWITCH

On domestic units, the power switch (2) is of the three-position type with the center position being "OFF." This switch has two "ON" positions, one of which is used to ground the amplifier properly. One of the "ON" positions will yield the lowest amount of residual hum or "popping" when the instrument is touched and this is the position that should be used.

On export models, we utilize a simple on/off switch that does not have multiple "ON" positions since the grounding (earthing) conditions in most countries are made positively through standard tamper-proof plug-in systems.

### LINE CORD

For your safety, we have incorporated a three-wire line (mains) cable (3) with proper grounding facilities. It is not advisable to remove the ground pin under any circumstances. If it is necessary to use the amp in a two-pin plug system without proper grounding facilities, suitable grounding adaptors should be used. Much less noise and greatly reduced shock hazard exist when the unit is operated with the proper grounded receptacles.

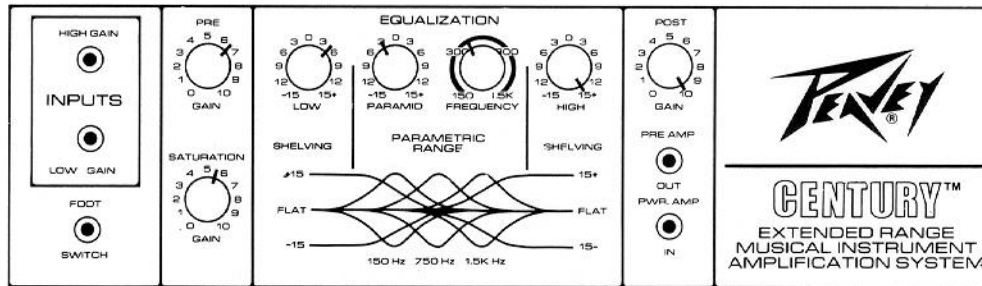
### SPEAKER OUTPUTS

The speaker output jacks (4) are of the standard ¼" type. Both the output jacks are wired in parallel and either or both may be used when connecting your speaker system. The 200H module has been optimized for a 4 ohm load but has adequate performance to drive loads both above and below the recommended 4 ohm impedance. Extreme care should be used when operating a unit below 4 ohms since lower load impedances tend to overload the power amplifier and may cause premature activation of the power amp's short circuit protection system and/or thermal fault protection circuitry.

### LINE (MAINS) CORD RETAINER

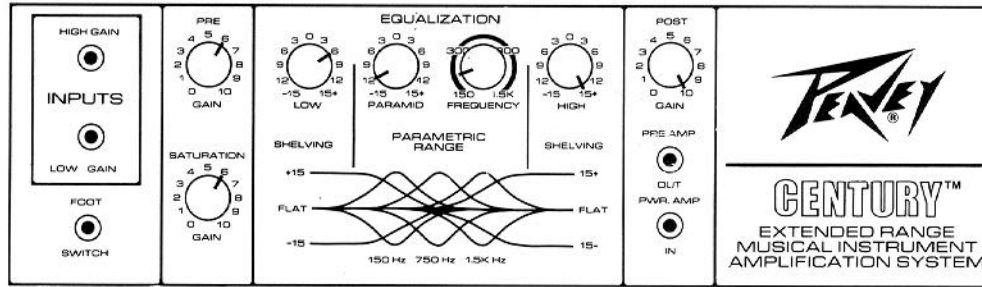
We have provided two large molded line cord retainers (5) on the rear panel to allow storage of the mains cable for travel. In operation, the cable should be completely unwrapped to allow maximum heat dissipation from the rear panel/heatsink.

# TONE SETTINGS FOR THE CENTURY



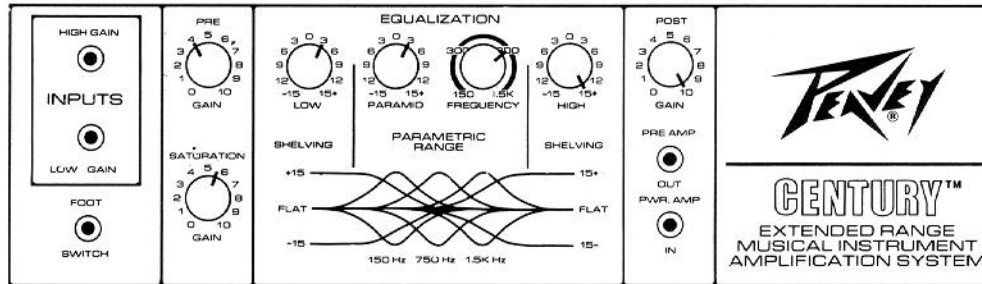
BUILT UNDER U.S. PATENT NO. 4,405,832

## ROCK



BUILT UNDER U.S. PATENT NO. 4,405,832

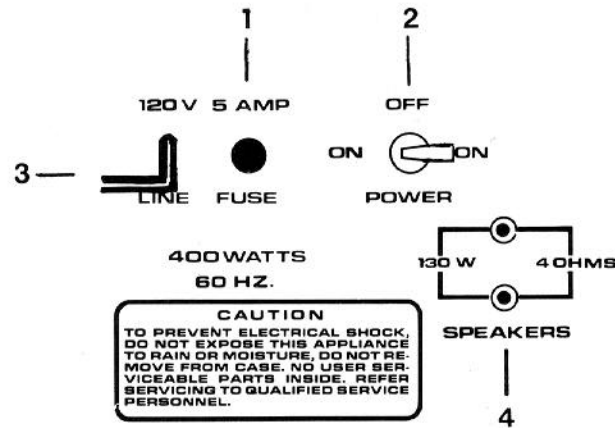
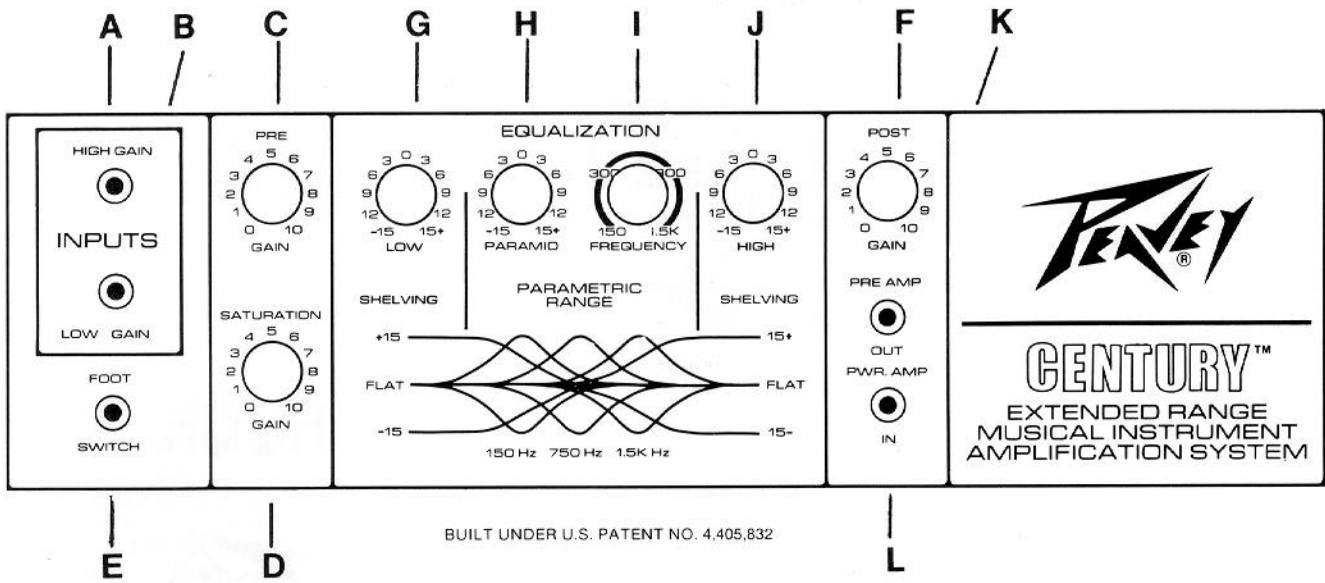
## COUNTRY



BUILT UNDER U.S. PATENT NO. 4,405,832

## JAZZ

# □ Front & Rear Panels □



**POWER AMPLIFIER SECTION: 200H Module**

**FREQUENCY RESPONSE:**

+0, -1 dB, 30 Hz to 30 kHz, @ 100W into 4 ohms

**RATED POWER & LOAD:**

100W RMS into 4 ohms

**POWER @ CLIPPING:**

(1% THD, 1 kHz, 120 VAC line)

Typically:

80W RMS into 8 ohms

120W RMS into 4 ohms

2 ohm load not recommended

**TOTAL HARMONIC DISTORTION:**

Less than 0.2%, 100 mW to 100W RMS, 50 Hz to 10 kHz, 4 ohms, Typically below 0.1%

**INTERMODULATION DISTORTION:**

Less than 0.2%, 100 mW to 100W RMS, 60 Hz & 5 kHz, 4 ohms, Typically below 0.1%

**SLEW RATE:**

Greater than 15V u/Sec

**DAMPING FACTOR:**

Greater than 50 @ 1 kHz, 4 ohms

**POWER REQUIREMENTS: (DOMESTIC)**

300W, 120 VAC, 50/60 Hz

**PREAMP SECTION:**

**THE FOLLOWING SPECS ARE MEASURED @ 1 kHz WITH THE CONTROLS PRESET AT THESE TYPICAL SETTINGS:**

**SATURATION™ @ 0**

**FREQUENCY @ 500 Hz**

**LOW EQ @ +6**

**HIGH EQ @ +9**

**PARAMID™ @ -6**

**POST GAIN @ 10**

**NOMINAL LEVELS ARE WITH PRE GAIN @ 12:00**

**MINIMUM LEVELS ARE WITH PRE GAIN @ FULL CLOCKWISE.**

**PREAMP INPUT CHARACTERISTICS:**

**HIGH GAIN INPUT JACK:**

Impedance: High Z, 220K ohms

Nominal Input Level: -26 dBV, 50 mV RMS

Minimum Input Level: -46 dBV, 5 mV RMS

Maximum Input Level: +6 dBV, 2V RMS

**LOW GAIN INPUT JACK:**

Impedance: High Z, 44K ohms

Nominal Input Level: -20 dBV, 100 mV RMS

Minimum Input Level: -40 dBV, 10 mV RMS

Maximum Input Level: +12 dBV, 4V RMS

**POWER AMP INPUT:**

Impedance: High Z, 47K

Nominal Input Level: 0 dBV, 1V RMS

**SIGNAL-TO-NOISE RATIO @ NOMINAL INPUT LEVEL:**

75 dB, 20 Hz to 20 kHz unweighted

**EQUALIZATION:**

+15 dB @ 80 Hz & 8 kHz, Shelving

+15 dB @ PARAMID, Peak/Notch

Mid is shiftable from 150 Hz to 1,500 Hz

**PREAMP OUTPUT:**

Load Impedance: 10K ohms or greater

Nominal Output: 0 dBV, 1V RMS

Maximum Output: +14 dBV, 5V RMS into 50K ohms

Due to our efforts for constant improvement, specification are subject to change without notice.

**DANGER**

EXPOSURE TO EXTREMELY HIGH NOISE LEVELS MAY CAUSE A PERMANENT HEARING LOSS. INDIVIDUALS VARY CONSIDERABLY IN SUSCEPTIBILITY TO NOISE INDUCED HEARING LOSS, BUT NEARLY EVERYONE WILL LOSE SOME HEARING IF EXPOSED TO SUFFICIENTLY INTENSE NOISE FOR A SUFFICIENT TIME.

THE U.S. GOVERNMENT'S OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) HAS SPECIFIED THE FOLLOWING PERMISSIBLE NOISE LEVEL EXPOSURES:

DURATION PER DAY IN HOURS	SOUND LEVEL dBA, SLOW RESPONSE
8	90
6	92
4	95
3	97
2	100
1½	102
1	105
¾	110
½ or less	115

ACCORDING TO OSHA, ANY EXPOSURE IN EXCESS OF THE ABOVE PERMISSIBLE LIMITS COULD RESULT IN SOME HEARING LOSS.

EAR PLUGS OR PROTECTORS IN THE EAR CANALS, OR OVER THE EARS MUST BE WORN WHEN OPERATING THIS AMPLIFICATION SYSTEM IN ORDER TO PREVENT A PERMANENT HEARING LOSS IF EXPOSURE IS IN EXCESS OF THE LIMITS AS SET FORTH ABOVE. TO INSURE AGAINST POTENTIALLY DANGEROUS EXPOSURE TO HIGH SOUND PRESSURE LEVELS, IT IS RECOMMENDED THAT ALL PERSONS EXPOSED TO EQUIPMENT CAPABLE OF PRODUCING HIGH SOUND PRESSURE LEVELS SUCH AS THIS AMPLIFICATION SYSTEM BE PROTECTED BY HEARING PROTECTORS WHILE THE UNIT IS IN OPERATION.

**CAUTION**

THIS AMPLIFIER HAS BEEN DESIGNED AND CONSTRUCTED TO PROVIDE ADEQUATE POWER RESERVE FOR PLAYING MODERN MUSIC WHICH MAY REQUIRE OCCASIONAL PEAK POWER. TO HANDLE OCCASIONAL PEAK POWER, ADEQUATE POWER "HEADROOM" HAS BEEN DESIGNED INTO THIS SYSTEM. EXTENDED OPERATION AT ABSOLUTE MAXIMUM POWER LEVELS IS NOT RECOMMENDED SINCE THIS COULD DAMAGE THE ASSOCIATED LOUDSPEAKER SYSTEM. PLEASE BE AWARE THAT MAXIMUM POWER CAN BE OBTAINED WITH VERY LOW SETTINGS OF THE GAIN CONTROLS IF THE INPUT SIGNAL IS VERY STRONG.

1. Read all safety and operating instructions before using this product.
2. All safety and operating instructions should be retained for future reference.
3. Obey all cautions in the operating instructions and on the back of the unit.
4. All operating instructions should be followed.
5. This product should not be used near water, i.e. a bathtub, sink, swimming pool, wet basement, etc.
6. This product should be located so that its position does not interfere with its proper ventilation. It should not be placed flat against a wall or placed in a built-in enclosure that will impede the flow of cooling air.
7. This product should not be placed near a source of heat such as a stove, radiator or another heat producing amplifier.
8. Connect only to a power supply of the type marked on the unit adjacent to the power supply cord.
9. Never break off the ground pin on the power supply cord. For more information on grounding write for our free booklet "Shock Hazard and Grounding."
10. Power supply cords should always be handled carefully. Never walk or place equipment on power supply cords. Periodically check cords for cuts or signs of stress, especially at the plug and the point where the cord exits the unit.
11. The power supply cord should be unplugged when the unit is to be unused for long periods of time.
12. If this product is to be mounted in an equipment rack, rear support should be provided.
13. Metal parts can be cleaned with a damp rag. The vinyl covering used on some units can be cleaned with a damp rag or an ammonia based household cleaner if necessary.
14. Care should be taken so that objects do not fall and liquids are not spilled into the unit through the ventilation holes or any other openings.
15. This unit should be checked by a qualified service technician if:
  - A. The power supply cord or plug has been damaged.
  - B. Anything has fallen or been spilled into the unit.
  - C. The unit does not operate correctly.
  - D. The unit has been dropped or the enclosure damaged.
16. The user should not attempt to service this equipment. All service work should be done by a qualified service technician.



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